REMARKS

Claims 1-11 remain pending.

In the Office Action, the Examiner rejected claim 1 under 35 U.S.C. § 112, ¶2; rejected claims 1, 6, 7, and 11 under 35 U.S.C. § 103(a) as being unpatentable over Wang et al. (U.S. Patent No. 6,523,233); and stated that claims 2-5 and 8-10 would be allowable if rewritten in independent form.

The deletion of "possible" from claim 1 obviates the § 112, ¶2 rejection, although Applicants do not agree that the presence of this one word in the preamble renders the remainder of the claim unclear or imprecise to one of ordinary skill in the art.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. See M.P.E.P. § 2143.

Applicants respectfully traverse the § 103(a) rejection of claims 1, 6, 7, and 11 over Wang et al.. Claim 1 requires a method including, *inter alia*, "preprocessing to minimize effect of impairments other than IMD, so as to derive best estimates x' of the received values that would correspond to a set of transmit values y; deriving IMD based constant I from x'; and deriv[ing] a IMD removed new estimate x" in accordance with the equation: $x'' = x' - I(by^3)$." Wang et al. fails to teach or suggest the claimed method.

Page 2 of the Office Action alleges that the "preprocessing . . ." element of claim 1 reads on col. 3, lines 39-46 of Wang et al. This portion of Wang et al. states:

> Next, the analog impairment is computed separately. To compute the analog impairment, first a corresponding analog level of the transmitted digital test signal is computed or estimated in accordance with μ-law encoding/decoding techniques or A-law encoding/decoding techniques. After a corresponding analog level is known, analog impairment is computed by comparing the corresponding analog level to the analog component of the received test signal.

This portion of Wang et al. only appears to disclose computing an analog impairment based on a digital test signal. Col. 3, lines 39-46, of Wang et al. does not teach or suggest preprocessing anything to minimize the effects of an impairment; it only teaches *calculating* a type of impairment. Hence, Wang et al. fails to teach or suggest the first-quoted "preprocessing . . ." element of claim 1 above.

Page 2 of the Office Action also alleges that the "deriving IMD based constant I from x'" element of claim 1 reads on col. 3, lines 49-51 of Wang et al. This portion of Wang et al. states:

> The digital impairment is then calculated by comparing the total telephone network impairment and analog impairment and finding a difference between them.

This portion of Wang et al. only appears to disclose calculating a digital impairment based on a digital test signal (col. 3, line 31). Col. 3, lines 49-51, of Wang et al. does not teach or suggest "deriving [an] IMD based constant I" as set forth in claim 1. Nowhere in Wang et al. is inter-modulation distortion (IMD) even mentioned. Thus, Wang et al. cannot logically teach or suggest deriving an "IMD based constant" as claimed.

Nor does Wang et al. teach or suggest deriving such a constant "from x'," where x' are the "best estimates . . . of the received values that would correspond to a set of transmit values y." Rather, col. 3, lines 49-51 of Wang et al. (and lines 30-48 preceding lines 49-51) discloses only calculating digital impairment from total impairment and analog impairment values evident from a *digital test signal*. Hence, Wang et al. also fails to teach or suggest the second-quoted "deriving IMD based constant I from x" element of claim 1 above.

Page 2 of the Office Action further alleges that the "deriv[ing] a IMD removed new estimate x" in accordance with the equation: $x'' = x' - I(by^3)$" element of claim 1 reads on col. 5, lines 50-55 and 60-61of Wang et al. This portion of Wang et al. states:

> Also, there exists a unique common impairment G, which causes the difference between the signal "y" (output by D/A converter 311) and the signal "z" (received at the client site modem 310) such that:
> $z=G*y=G*f(x)$;
> whercin x, y ε S_{ua}, and S_{ua} is a set of all valid codex output value for μ-law (or A-law) standard;
> G is a constant (linear) value representing an analog impairment for a particular data communication session.

This portion of Wang et al. only appears to disclose a set of conditions that produce a common analog impairment G. It cannot reasonably be argued that the equation $z=G*y=G*f(x)$ in col. 5, lines 50-55 and 60-61, of Wang et al. (or the equations in col. 6) teach or suggest the specifically claimed equation "$x'' = x' - I(by^3)$" set forth in claim 1. For example, Wang et al. does not teach or suggest cubing any particular variable. Hence, Wang et al. fails to teach or suggest the third-quoted "deriv[ing] a IMD removed new estimate x". . ." element of claim 1 above.

Because, as explained above, the cited portions of Wang et al. fail to teach or suggest any of the three elements of claim 1, a *prima facie* case of obviousness has not been established for independent claim 1.

A *prima facie* case of obviousness also has not been established, because there is no suggestion to modify Wang et al. as proposed. As an initial matter, the Examiner produces no evidence of any suggestion to modify Wang et al. on page 3 of the Office action; only bare conclusions are put forth. Also, the justification that "modifying constants and/or variables of a known function to achieve an optimum relationship requires routine skill in the art" is legally incorrect and factually inapplicable. None of the various rationales in M.P.E.P. §§ 2144-2144.09 supports this sweeping assertion.

Nor does the equation $z=G*y=G*f(x)$ in col. 5, lines 50-55 of Wang et al. suggest the claimed equation $x'' = x' - I(by^3)$. The latter equation is completely different in form and structure from the former equation of Wang et al.. Thus, the two equations do not, contrary to the Examiner's assertion, constitute "a known function." Nor is the conversion of one equation to the other merely a matter of "modifying constants and/or variables" as alleged. One skilled in the art, in possession of Wang et al., would not have been motivated to modify the reference to achieve the elements of claim 1. A *prima facie* case of obviousness has not been established for independent claim 1 for this additional reason.

Claims 6, 7, and 11 are allowable at least by virtue of their dependence from claim 1.

Reconsideration and allowance of pending claims 1-11 is respectfully requested.

In the event that any outstanding matters remain in this application, Applicants request that the Examiner contact Alan Pedersen-Giles, attorney for Applicants, at the number below to discuss such matters.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-0221 and please credit any excess fees to such deposit account.

Respectfully submitted,

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